

1 APPLICATION FOR UNITED STATES LETTERS PATENT

2 ON INVENTION FOR:

3 REAR PEEP SIGHT FOR MOUNTING TO A BOW STRING, HAVING
4 INTERCHANGEABLE SIGHT PORTS FOR ACCOMMODATING USER
5 PREFERENCES

6 BY INVENTOR: Alfred H. Shaffer &
7 Richard D. Shaffer

8 *****

9 Agt. Doc. No.: SHAA03A

10 *****

11 RICHARD L. MILLER

12 REGISTERED PATENT AGENT

13 12 PARKSIDE DRIVE

14 DIX HILLS, NEW YORK 11746-4879

15 PHONE: (631) 499-4343

16 *****

17 TO ALL WHOM IT MAY CONCERN:

18 BE IT KNOWN that I, Alfred H. Shaffer, a citizen of
19 THE UNITED STATES OF AMERICA and resident of: Bruceton
20 Mills, WV 26525 and Richard D. Shaffer, a citizen of THE
21 UNITED STATES OF AMERICA and resident of: Glenville, WV
22 26351 have invented certain new and useful improvements in
23 a(n): REAR PEEP SIGHT FOR MOUNTING TO A BOW STRING, HAVING
24 INTERCHANGEABLE SIGHT PORTS FOR ACCOMMODATING USER
25 PREFERENCES of which the following is a full, clear, concise
26 and exact description: -0-

1 Inventors: Alfred H. Shaffer and Richard D. Shaffer
2 Invention: REAR PEEP SIGHT FOR MOUNTING TO A BOW STRING, HAVING
3 INTERCHANGEABLE SIGHT PORTS FOR ACCOMMODATING USER
4 PREFERENCES

5 DOC. No.: SHAA03A

6 BACKGROUND OF THE INVENTION

7 Field of the Invention:

8 The present invention relates to a rear peep sight for mounting to
9 a string of a bow. More particularly, the present invention relates to
10 a rear peep sight for mounting to a bowstring and having interchangeable
11 sight ports for accommodating different user preferences.

12 Description of the Prior Art:

13 Numerous innovations for bow sights have been provided in the prior
14 art that will be described. Even though these innovations may be suitable
15 for the specific individual purposes to which they address, however, they
16 differ from the present invention.

17 A FIRST EXAMPLE, U.S. Patent No. 3,410,644 to McLendon teaches
18 telescopic sight means for a bow having an optical system comprising at
19 least one optical lens sight means affixed integrally between the strands
20 of the bowstring or mounted upon the bowstring, the lens preferably being
21 sightingly aligned with a second optical lens sight affixed to the bow,
22 whereby the target is magnified.

23 A SECOND EXAMPLE, U.S. Patent No. 3,703,771 to Saunders teaches a
24 bowstring-mounted peep sight including a body having vertically disposed
25 side channels serving as housings and guides for carrying the strands of
26 a divided multi-filament bowstring. A frame encircling the body of the
27 sight and overlying the divided strands firmly embraces the peep sight

1 body along opposed sides thereof, the frame including internally formed
2 upper and lower bosses or hubs having axially disposed in-line passages
3 adapted slidably to receive the bowstring therethrough, whereby the peep
4 sight is conveniently secured on the bowstring in any selectable position.
5 The body of the peep sight, adjacent the area of the sighting port, is
6 provided with a grating-type surface contour to eliminate reflection and
7 glare in the region of the port.

8 A THIRD EXAMPLE, U.S. Patent No. 4,934,332 to Scherz teaches an
9 archery bow peep sight designed to be mounted horizontally in a multi-
10 stranded bowstring such that the axis of the peep is the same as the line
11 of the bowstring. The peep sight is disk shaped having three or more
12 slots parallel to the axis of the peep and uniformly distributed about the
13 periphery. The faces of the peep sight are parallel to one another and
14 have opposing frustoconical surfaces which are penetrated at their apexes
15 by the sighting hole or peep.

16 A FOURTH EXAMPLE, U.S. Patent No. 5,080,084 to Kendall et al.
17 teaches a peep sight for use with an archer's bow that is fabricated from
18 a non-opaque material to which a light enhancing color has been added.
19 The available light is thereby intensified in the peep sight so that
20 visibility is increased at low light levels. The peep sight has four
21 notched corners for mounting the peep sight on the bowstring. When so
22 mounted the strands of the bowstring do not obstruct the visions of the
23 archer. Furthermore, the peep hole in the peep sight may be angled to
24 increase the field of vision of the archer. A dark annular ledge is
25 provided about the peep hole to further improve viewing definition through
26 the peep sight. In a second embodiment, a source of energy, and a light
27 source connected to the peep sight by a fiber optic cord also provides a
28 peep sight for improved visibility for the archer.

29 A FIFTH EXAMPLE, U.S. Patent No. 5,157,839 to Beutler teaches a rear
30 peep sight apparatus for use with a bow that includes a body formed of a
31 transparent material for mounting in a bow string. The body has generally
32 parallel front and rear surfaces connected by a curved side surface and

1 the side surface and a portion of each of the front and rear surfaces is
2 opaque. The body has a cavity formed therein for mounting a light source
3 which is connected by a spiral wound elastic conductor to a battery and
4 switch enclosed in a housing which can be releasably attached to the bow.
5 The peep sight can include sighting means such as, for example, an oval
6 ring, a dot and a cross hair. In the alternative, the light source can
7 be located in the housing and the light transmitted through a fiber optic
8 conductor to the body.

9 A SIXTH EXAMPLE, U.S. Patent No. 5,325,598 to Hall et al. teaches
10 a bowstring mounted peep sight having a peep housing that is frictionally
11 located between displaced bowstring filaments. The peep housing defines
12 a peep hole and a transverse oriented receiving slot. Insertable aperture
13 reducing discs are slidably inserted into the receiving slot to
14 incrementally decrease the relative aperture of the peep hole. To prevent
15 the inserts from being inadvertently dislodged from the receiving slot
16 during use of the invention, one of the displaced bowstring elements is
17 positioned so as to prevent the disc from sliding outwardly therefrom.
18 Because of the design of the peep housing, lightweight materials can be
19 utilized. Frusto conical recesses on both planar surfaces of the peep
20 housing reduce incidental glare thereby increasing the clarity of the
21 observed target.

22 A SEVENTH EXAMPLE, U.S. Patent No. 5,996,569 to Wilson teaches an
23 improved rear bow sight used in archery. The present invention is a
24 bowstring mounted rear peep sight formed of clear, preferably acrylic,
25 material. The transparent characteristic of the present invention allows
26 the archer to align the rear bow sight with the forward sight pin, while
27 remaining focused on the position on the target at which the archer is
28 aiming. A second embodiment of the present invention includes an ambient
29 light collecting fiber which acts as a rear transparent sight pin within
30 a sight window. The light collecting fiber is wrapped about the sight in
31 order to collect ambient light, while the second end of the fiber acts as
32 the sight pin and is centrally positioned within the sight window. The

1 sight pin provides an illumination point for alignment with a forward
2 sight in order to set proper aim at a target. A third embodiment of the
3 present invention uses a surface to help contrast the illumination point
4 of the sight pin against the surrounding environment in order to better
5 view the sight pin. Another embodiment uses two fibers as pin sights
6 along with an enlarged contrasting member to enhance visibility of the pin
7 sight.

8 It is apparent that numerous innovations for bow sights have been
9 provided in the prior art that are adapted to be used. Furthermore, even
10 though these innovations may be suitable for the specific individual
11 purposes to which they address, however, they would not be suitable for
12 the purposes of the present invention as heretofore described.

1

BRIEF DESCRIPTION OF THE DRAWING

2

The figures of the drawing are briefly described as follows:

3

4

FIGURE 1 is a diagrammatic side elevational view of the present invention in use;

5

6

7

FIGURE 2 is an enlarged diagrammatic perspective view of the area generally enclosed by the dotted curve identified by ARROW 2 in FIGURE 1 of the present invention;

8

9

FIGURE 3 is an enlarged diagrammatic side elevational view taken generally in the direction of ARROW 3 in FIGURE 2;

10

11

12

FIGURE 4 is an enlarged diagrammatic perspective view of the area generally enclosed by the dotted curve identified by ARROW 4 in FIGURE 2 of a typical interchangeable sighting member of the present invention;

13

14

FIGURE 5 is an enlarged diagrammatic cross sectional view taken along LINE 5-5 in FIGURE 4;

15

16

FIGURE 6 is an enlarged diagrammatic cross sectional view taken along LINE 6-6 in FIGURE 4; and

17

18

19

FIGURES 7-13 are diagrammatic front elevational views of other interchangeable sighting members utilized in place of the interchangeable sighting member shown in FIGURE 4 of the present invention.

1

LIST OF REFERENCE NUMERALS UTILIZED IN THE DRAWING

- 2 20 rear peep sight of present invention for mounting to string 22 of
3 bow 23 and having interchangeable sight ports for accommodating
4 different user preferences
5 22 string of bow 23
6 23 bow
7 24 mounting member for mounting to string 22 of bow 23
8 26 sighting member
9 28 forward-facing surface of mounting member 24
10 30 rearward-facing surface of mounting member 24
11 32 pair of sideward-facing surfaces of mounting member 24
12 34 pair of grooves in pair of sideward-facing surfaces 32 of
13 mounting member 24, respectively, for tightly receiving string 22
14 of bow 23 so as to thereby mount rear peep sight 20 to string 22
15 of bow 23
16 35 sighting through bore in mounting member 24
17 36 alignment arm of mounting member 24 for reducing and helping
18 prevent twisting or axial rotation of rear peep sight 20 about
19 string 22 of bow 23
20 38 terminal free end of alignment arm of mounting member 24
21 40 elastic cord
22 42 mount
23 44 visor of mounting member 24 for reducing glare
24 46 channel in rearward-facing surface 30 of mounting member 24
25 48 upper wall defining channel 46 in rearward-facing surface 30 of
26 mounting member 24
27 50 lower wall defining channel 46 in rearward-facing surface 30 of
28 mounting member 24
29 51 pair of through bores in mounting member 24
30 52 plate of sighting member 26
31 54 forward-facing surface of plate 52 of sighting member 26

- 1 56 rearward-facing surface of plate 52 of sighting member 26
- 2 58 upper-facing surface of plate 52 of sighting member 26
- 3 60 lower-facing surface of plate 52 of sighting member 26
- 4 62 sighting through bore in plate 52 of sighting member 26
- 5 64 auxiliary through bore in plate 52 of sighting member 26
- 6 66 pimple of plate 52 of sighting member 26
- 7 68 screw of sighting member 26

1

2

7

9

2

4

7

⑤

6

1 The mounting member 24 further has an alignment arm 36. The
2 alignment arm 36 of the mounting member 24 is for reducing and helping
3 prevent twisting or axial rotation of the rear peep sight 20 about the
4 string 22 of the bow 23, and is slender, elongated, rod-like, and extends
5 incliningly upwardly from the forward-facing surface 28 of the mounting
6 member 24, above the sighting through bore 35 in the mounting member 24,
7 to a terminal free end 38.

8 An elastic cord 40 is attached to the terminal free end 38 of the
9 alignment arm 36 of the mounting member 24 and extends therefrom for
10 attaching to the bow 23 by a mount 42 (FIG. 1), and by so doing, as the
11 string 22 of the bow 23 is drawn rearward, the elastic cord 40 urges the
12 alignment arm 36 into alignment with the bow 23, thus precluding axial
13 twist of the rear peep sight 20 about the string 22 of the bow 23 and
14 keeping the sighting member 26 disposed generally perpendicular to a line
15 of sight of an archer.

16 Preferably, the alignment arm 36 extends along a plane which is
17 thirty-five degrees from a plane in which the mounting member 24 lies.

18 The mounting member 24 further has a visor 44. The visor 44 of the
19 mounting member 24 is for reducing glare, is convex-concave-shaped, and
20 extends incliningly downwardly from the rearward-facing surface 30 of the
21 mounting member 24, above the sighting through bore 35 in the mounting
22 member 24, but below the elevation of the alignment arm 36 of the mounting
23 member 24.

24 The rearward-facing surface 30 of the mounting member 24 has a
25 channel 46. The channel 46 extends transversely in the rearward-facing
26 surface 30 of the mounting member 24, from and opening into one side
27 surface of the pair of side surfaces 32 of the mounting member 24 to and
28 opening into the other side surface of the pair of side surfaces 32 of the
29 mounting member 24, and communicates with the sighting through bore 35 in
30 the mounting member 24.

31 The channel 46 in the rearward-facing surface 30 of the mounting
32 member 24 is defined by an upper wall 48 and a lower wall 50. The upper

1 wall 48 and the lower wall 50 defining the channel 46 in the rearward-
2 facing surface 30 of the mounting member 24 both extend transversely
3 across the rearward-facing surface 30 of the mounting member 24.

4 The upper wall 48 defining the channel 46 in the rearward-facing
5 surface 30 of the mounting member 24 extends forwardly and upwardly in the
6 rearward-facing surface 30 of the mounting member 24 and the lower wall
7 50 defining the channel 46 in the rearward-facing surface 30 of the
8 mounting member 24 extends forwardly and downwardly in the rearward-facing
9 surface 30 of the mounting member 24 so as to allow the channel 46 in the
10 rearward-facing surface 30 of the mounting member 24 to diverge forwardly.

11 The mounting member 24 further has a pair of through bores 51. The
12 pair of through bores 51 in the mounting member 24 are not threaded, and
13 extend laterally through the mounting member 24, from the forward-facing
14 surface 28 of the mounting member 24 to the rearward-facing surface 30 of
15 the mounting member 24, are horizontally-aligned with each other, and
16 straddle the sighting through bore 35 in the mounting member 24.

17 The specific configuration of the sighting member 26 can best be
18 seen in FIGURES 2-6, and as such, will be discussed with reference
19 thereto.

20 The sighting member 26 is a plate 52. The plate 52 of the sighting
21 member 26 is slidably received in the channel 46 in the rearward-facing
22 surface 30 of the mounting member 24, from either sideward-facing surface
23 of the pair of sideward-facing surfaces 32 of the mounting member 24, and
24 is generally rectangular-shaped, horizontally-oriented, and has a forward-
25 facing surface 54, a rearward-facing surface 56, an upper-facing surface
26 58, and a lower-facing surface 60.

27 The upper-facing surface 58 of the plate 52 of the sighting member
28 26 extends forwardly and upwardly from the rearward-facing surface 56 of
29 the plate 52 of the sighting member 26 to the forward-facing surface 54
30 of the plate 52 of the sighting member 26 and the lower-facing surface 60
31 of the plate 52 of the sighting member 26 extends forwardly and downwardly
32 from the rearward-facing surface 56 of the plate 52 of the sighting member

1 26 to the forward-facing surface 54 of the plate 52 of the sighting member
2 26 so as to allow the plate 52 of the sighting member 26 to converge
3 rearwardly.

4 The upper-facing surface 58 of the plate 52 of the sighting member
5 26 is captured by the upper wall 48 defining the channel 46 in the
6 rearward-facing surface 30 of the mounting member 24 and the lower-facing
7 surface 60 of the plate 52 of the sighting member 26 is captured by the
8 lower wall 50 defining the channel 46 in the rearward-facing surface 30
9 of the mounting member 24 when the plate 52 of the sighting member 26 is
10 slid sideways into the channel 46 in the rearward-facing surface 30 of the
11 mounting member 24 so as to provide a dove-tail joint that prevents the
12 plate 52 of the sighting member 26 from vertical movement once the plate
13 52 of the sighting member 26 is in the channel 46 in the rearward-facing
14 surface 30 of the mounting member 24, yet allows for horizontal movement
15 so as to allow the plate 52 of the sighting member 26 to slide sideways
16 into the channel 46 in the rearward-facing surface 30 of the mounting
17 member 24.

18 The plate 52 of the sighting member 26 further has a sighting
19 through bore 62. The sighting through bore 62 in the plate 52 of the
20 sighting member 26 extends substantially centrally through the plate 52
21 of the sighting member 26, from the rearward-facing surface 56 of the
22 plate 52 of the sighting member 26 to the forward-facing surface 54 of the
23 plate 52 of the sighting member 26, and is aligned with the sighting
24 through bore 35 in the mounting member 24 once the plate 52 of the
25 sighting member 26 is in the channel 46 in the rearward-facing surface 30
26 of the mounting member 24.

27 The sighting through bore 62 in the plate 52 of the sighting member
28 26 has a shape for accommodating different user preferences.

29 The plate 52 of the sighting member 26 further has an auxiliary
30 through bore 64. The auxiliary through bore 64 in the plate 52 of the
31 sighting member 26 is threaded, and extends through the plate 52 of the
32 sighting member 26, from the rearward-facing surface 56 of the plate 52

1 of the sighting member 26 to the forward-facing surface 54 of the plate
2 52 of the sighting member 26, is positioned to one side of the sighting
3 through bore 62 in the plate 52 of the sighting member 26, and is aligned
4 with one through bore of the pair of through bores 51 in the mounting
5 member 24 once the plate 52 of the sighting member 26 is in the channel
6 46 in the rearward-facing surface 30 of the mounting member 24.

7 The plate 52 of the sighting member 26 further has a pimple 66. The
8 pimple 66 of the plate 52 of the sighting member 26 extends rearwardly
9 from the rearward-facing surface 56 of the plate 52 of the sighting member
10 26, is positioned to the other side of the sighting through bore 62 in the
11 plate 52 of the sighting member 26, is horizontally-aligned with the
12 auxiliary through bore 64 in the plate 52 of the sighting member 26, and
13 is engaged by the other through bore of the pair of through bores 51 in
14 the mounting member 24 once the plate 52 of the sighting member 26 is in
15 the channel 46 in the rearward-facing surface 30 of the mounting member
16 24 so as to prevent the plate 52 of the sighting member 26 from horizontal
17 movement once the plate 52 of the sighting member 26 is in the channel 46
18 in the rearward-facing surface 30 of the mounting member 24.

19 The sighting member 26 further has a screw 68. The screw 68 of the
20 sighting member 26 extends freely through one through bore of the pair of
21 through bores 51 in the mounting member 24, from the forward-facing
22 surface 28 of the mounting member 24, and threadably into the auxiliary
23 through bore 64 in the plate 52 of the sighting member 26, from the
24 forward-facing surface 54 of the plate 52 of the sighting member 26, so
25 as to maintain prevention of the plate 52 of the sighting member 26 from
26 horizontal movement once the plate 52 of the sighting member 26 is in the
27 channel 46 in the rearward-facing surface 30 of the mounting member 24.

28 It is to be understood that since the pair of through bores 51 in
29 the mounting member 24 are not threaded and the auxiliary through bore 64
30 in the plate 52 of the sighting member 26 is threaded and horizontally-
31 aligned with the pimple 66 of the plate 52 of the sighting member 26, the
32 plate 52 of the sighting member 26 can be positioned either right-side-up

1 or up-side-down in the channel 46 in the rearward-facing surface 30 of the
2 mounting member 24 depending upon what shape a user desires for the
3 sighting through bore 62 in the plate 52 of the sighting member 26.

4 Figures 7-13 illustrate various interchangeable sighting members 26
5 having different shaped sighting through bores 62.

6 It will be understood that each of the elements described above, or
7 two or more together, may also find a useful application in other types
8 of constructions differing from the types described above.

9 While the invention has been illustrated and described as embodied
10 in a rear peep sight for mounting to a string of a bow and having
11 interchangeable sight ports for accommodating different user preferences,
12 however, it is not limited to the details shown, since it will be
13 understood that various omissions, modifications, substitutions and
14 changes in the forms and details of the device illustrated and its
15 operation can be made by those skilled in the art without departing in any
16 way from the spirit of the present invention.

17 Without further analysis, the foregoing will so fully reveal the
18 gist of the present invention that others can, by applying current
19 knowledge, readily adapt it for various applications without omitting
20 features that, from the standpoint of prior art, fairly constitute
21 characteristics of the generic or specific aspects of this invention.